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# U. S. DEPARTMENT OF AGRICULTURE

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## FITTING DRESSES AND BLOUSES



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# FITTING DRESSES AND BLOUSES<sup>1</sup>

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**D**OUBTLESS every woman has had difficulty at some time with the fit of a garment whether she made it herself, hired a dress-maker, or purchased it ready-made. The cost of fitting garments plus the decreased value and loss through misfits is an important part of the 8½ billion-dollar annual clothing bill of the United States. No one so far has estimated this one item, but the increased value of labor and of materials is forcing it to the attention of all.

Retail merchants have to maintain expensive alteration departments in order to sell their ready-made clothes. Even with the most skillful fitters they have some losses in trade and in goods on account of unsuccessful attempts to fit customers. Manufacturers also must stand losses when ill-fitting garments are returned by retailers.

The direct money loss in homemade clothing through fitting difficulties is less obvious but even more widespread. Recent surveys show that women who do their own sewing have more difficulty with altering patterns and fitting garments than with any other part of garment construction. The time that is wasted in attempting to solve these problems has economic value. There is economic loss, too, if full return is not obtained from the materials used. So much dissatisfaction may result from an ill-fitted garment that it is soon cast aside or it is not worn at all.

One of the reasons for these fitting troubles is that manufacturers have used so-called "ideal" measurements as their basis in cutting garments and patterns. These "ideal" sets were obtained by measuring a relatively small number of persons who seemed to be of average build. From them a scale of different sizes was usually developed by merely increasing or decreasing them in the same propor-

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<sup>1</sup> Acknowledgment is hereby made of the suggestions obtained from publications of State clothing specialists and used as a supplement to the experimental work done in this bureau on garment fitting. Miss Marion Tucker, of the Massachusetts College of Agriculture, was particularly helpful on this project. Acknowledgment is also made to the other specialists who gave criticisms on the manuscript.

tion. Unfortunately, people do not grow that way. Also the original measurements were not taken on a large enough number to give representative group averages.

Some pattern and ready-to-wear companies, realizing these difficulties, are now making a special effort to fit figures that differ from the so-called average. (Fig. 1.) They are establishing new measurements for short-stout and tall-stout figures, and other irregular sizes. This is a step in the right direction. To get at the root of the matter, however, thousands of figures will have to be measured scientifically. In this way only can be found what are the measurements and proportions of the majority of American women. From these measurements, representing actual people, patterns and garments can be made which will need fewer alterations. Even with these some fitting problems, of course, will always occur. Every person's build is affected somewhat by habits of walking, standing, and sitting, by the kind of work done, and more or less by fashion in dress. These minor differences between individuals, however, will cause less trouble if the basic measurements are right.

This bulletin gives assistance on the fitting of women's dresses and blouses. It describes and illustrates as far as possible where the main lines of the well-fitted garment should fall in relation to the figure and then gives methods for correcting the common defects in each part of the garment. In some cases this can be done only by altering the pattern. It is suggested, therefore, that a well-fitted foundation pattern be made and kept as a guide, thus saving much time and material.

#### SELECTION OF PATTERNS AND MATERIALS

Careful choice of patterns will prevent some fitting difficulties. One make of pattern can not, in general, be said to be superior to another in fit, but because different pattern manufacturers have used different foundation lines, some makes will fit some types of figures better than others.

It is advisable to experiment with the different makes and find the one best suited to the figure. Comparing two or more makes of dress patterns of the same bust measure and of similar style will show the variation in widths of back and front, slant and length of shoulder seams, and shape and size of neck and armseye lines.

In increasing the sizes of patterns and dresses, the manufacturers often widen the shoulders and other parts in the same proportion as the bust measure. Body measurements do not necessarily follow this rule. Therefore it may be found that a pattern selected by the bust measure does not fit any other part. This is particularly true in extremely small and extremely large sizes. In such cases it is often advisable to find a pattern which will fit the shoulders and alter it to conform to the bust before cutting the dress.

Furthermore, every woman who has a bust measure of 38 inches (fig. 1) can not use the same pattern without alterations and probable fitting difficulties because of differences in height and other proportions. When using commercial patterns, measurements of the

figure should always be taken, the pattern checked by these, and the alterations made as far as possible before the garment is cut. Even so, the neck and shoulders and other parts may have to be fitted when the garment is tried on.

If a pattern of a style or cut suited to the figure is chosen, fitting will be easier. For example, on a stout figure a set-in sleeve is better than the raglan or the kimono style. With the latter type, ugly wrinkles which can not be fitted out are likely to appear under the arm. On the slender, square-shouldered person, however, these sleeves cause fewer fitting difficulties.

Textures which are not adapted to the type of garment often cause serious difficulties. The tailored street garment, for instance, will never be easily fitted if made of a flimsy or a thin, stiff fabric. Serge, twills, or heavy linen are better for these costumes, while crêpes and voiles are more desirable for less severe designs. Garments made from firm or stiff fabrics, such as taffeta, organdie, linen, and gingham, are fitted more satisfactorily if made with set-in sleeves. The kimono dress should be made of soft material which has enough body to hang well.

Some textiles are so soft and so loosely woven that great care must be taken in the construction of the garment; otherwise, even after it is fitted carefully, it may be easily pulled out

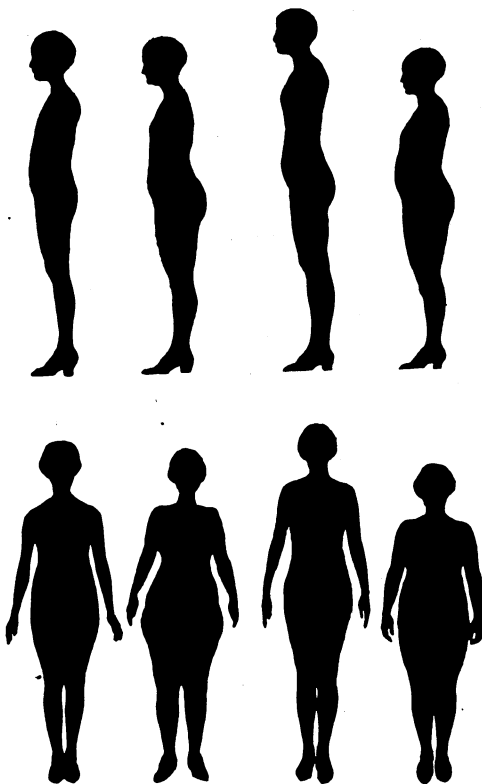


FIG. 1.—Four figures with 38-inch bust measure. The differences in height, neck measure, slant and width of shoulders, waist and hip measure, position of waistline, and other proportions would necessitate alterations on almost any size 38 pattern or ready-made garment for these figures

of shape. In making garments of such fabrics, make them large enough to prevent the pulling of seams in all places where there is much strain. Persons who are not experienced in garment making are more likely to succeed with firmly woven materials. No two kinds of fabrics will stretch and work up alike. Neither will they be likely to require the same alterations, even if cut from the same pattern.

## CUTTING

For any type or kind of garment several rules in cutting should be carefully observed. If disregarded, the garment may be difficult or impossible to fit.

First of all, keep the pattern straight with both the warp and the weft threads of the material and have both free from wrinkles and creases. For example, when cutting a sleeve the lengthwise pattern markings (fig. 22, A, *b*) must be kept straight with the lengthwise threads of the material, and the underarm seam points at the arm-scyce must fall on the same crosswise threads of the fabric (fig. 22, A, *c*). If the material is folded, lengthwise or crosswise folds must be exactly parallel or at right angles with the selvages. The temptation is sometimes great to swing the pattern even a half inch off center in order not to piece a small corner. This is fatal to the appearance of the finished garment and can not be remedied without recutting.

Lay the pattern on the material with the least possible waste. Watch carefully the placing and matching of stripes or figures.

Use pins or weights, as the material requires, to hold the pattern securely while cutting. Mark perforations and notches with chalk or tailor's tacks. Never cut notches. Especially in silk and wool garments mark the center front and center back with a long uneven basting as a guide for accurate fitting and the correct placing of pockets, trimmings, and other parts.

Before cutting out a dress or blouse be sure that the shoulder of the back section of the pattern is one-half inch longer from the arm-scyce to the neck line than the shoulder of the front section. This extra length is eased onto the front edge when the shoulder seam is basted. If the pattern has not made this allowance, nevertheless cut it that way, especially for the figure that is even slightly round-shouldered. To add this amount lay a tiny lengthwise fold in the material through the center of the back shoulder before cutting. If necessary, a similar amount may be added at the center back of the neck. This fullness gives needed room across the shoulder blades.

When cutting out a garment follow the edge of the pattern exactly. Most patterns allow for seams. If the edges are not followed accurately, the garment when basted up is larger than intended in some places and smaller in others, and fitting becomes more difficult.

## PREPARATION FOR FITTING

In order that the fitting process need not be repeated on every garment, make a guide or foundation pattern of good quality unbleached muslin, cambric, gingham, or any other firm cotton material. The warp and filling threads of the material are most easily seen if a large checked gingham is used. A simple dress pattern with a normal shoulder seam, high neck line, and set-in sleeves is best for this model. (Fig. 2.) Almost any style of dress and many blouses can be designed from it. A woman can fit her own foundation pattern, but it is better to have help. After the foundation pattern is fitted, if both sides are alike, cut it down the center front and back and use one-half as a pattern for simple dresses, the other

as a basis for designing. Or fold the pattern down the center and stitch it double. This makes it heavier, allowing it to cling more closely to the material when used. A paper pattern may be cut from this if desired. Stitch all seam and dart lines with contrasting thread, thus making the pattern reversible. Also stitch all pieces one-eighth inch from the edge to prevent stretching. Mark the straight of the material in each piece of the cloth pattern by making a slash 6 to 8 inches long exactly following a thread of the material. If the two sides are very different, save the whole pattern and mark plainly the right and left sides.

If there are darts marked in the pattern, baste these carefully with a small running stitch before any of the seams are made.

Before basting a seam, place pins the entire length at intervals of every 4 to 6 inches at right angles to the seam line. This will keep one side from stretching more than the other. Holding the bias side next to the worker when basting a seam will also help to prevent stretching. When making garments of firm materials which have been cut by a fitted foundation pattern no basting is necessary if the seams are carefully pinned. If French or flat felled seams are to be used, baste the garment right side out so that it will not have to be turned before the seams are stitched for the first time. Seams which are stitched first on the wrong side of the garment should be basted on the wrong side. Because a person's right and left sides are seldom exactly alike, a garment should not be fitted wrong side out, for when reversed it may not fit.

Whether a foundation pattern or a garment is being made, baste or pin the shoulder and underarm seams first in preparation for the first fitting. It is well to test the balance of the underarm seam before



FIG. 2.—Correct shoulders and armscye lines for dress or blouse with set-in sleeves



FIG. 3.—Correct shoulder line for kimono dress



basting it. (See "Neck and shoulders sliding back," p. 12.) Very thin, soft materials such as georgette crêpe, crêpe de chine, and similar fabrics, must be basted carefully. When basting the shoulder seams, ease in the extra length allowed on the back shoulder edge, holding the longer side on top. If extra width was added at the center back of the neck take it up by shirring or by making a group of tiny tucks.

Before beginning to fit the garment, adjust it to the figure and pin the closing together without any more lap than it will have in the finished garment. If it is to have a belt or a sash, adjust a tape to mark the line, and slope it down slightly from the back toward the front. This so-called waistline is lowered or raised according to the dictates of fashion and to suit the individual figure. As it is a horizontal line it should not be placed so as to divide the garment in two equal parts. Fullness at the belt line should fall in straight folds.

### FITTING

A well-fitted garment allows freedom of movement without being too large and is free from unnecessary wrinkles and folds. The general style of the garment determines whether the fitting should be snug, easy, or loose. Garments fitted moderately loose are best suited to large figures, for tightness emphasizes the curves and makes the figure appear larger. Make any garment too loose rather than too snug. One which is too tight is neither comfortable nor attractive. Also allow for shrinkage of the fabric when it is cleaned.

In general the warp or weft of the material in a properly fitted garment runs straight around the figure at the hips and chest, and at the largest part of the arm when a set-in sleeve is used. (Fig. 13.) In the kimono style the threads are not parallel to the floor in the sleeves and if there are no shoulder seams the threads of the fabric do not lie straight across the chest. Underarm seams and center front and back threads of any garment are always perpendicular to the floor. The skirt hangs straight without swinging to the front or to the back. (Fig. 10B.) If the hem line is even, it is the same distance from the floor at all points. The length of the skirt should be determined by style as well as by the height, weight, and figure of the individual.

When fitting the garment try the seams in different positions, especially those of the shoulder. Study the figure to find the position which will emphasize the best features and conceal those which are not so good. It is better to put the attention on the fitting of the figure rather than on keeping the lines of the pattern.

Let the final test of the fit of a dress be made while sitting. It should be perfectly comfortable and no unsightly wrinkles should develop in this position.

Accurate basting and stitching and careful pressing are essential in a well-fitted garment. Stitching must follow near enough to the line of basting that the size of the garment will not be altered. Press each seam as it is finished, especially when working with silk or wool materials. One final pressing will not produce the same results. Turn the shoulder and underarm seams toward the front if they are not pressed open. Turn the armhole seam and shoulder darts toward

the neck. If the underarm seam is fitted in at the waistline so that it curves, make right angle slashes 2 inches apart along the raw edges of the seam to within one-eighth inch of the stitching.

#### FITTING THE SHOULDERS

A properly placed shoulder seam acts as an anchor to a well-fitted garment. Therefore it should be located most carefully and the shoulders should be the first part of the garment fitted. As a result, the material should be smooth over the chest and shoulder blades with no wrinkles nor bulges in the front or the back (fig. 2), and with no appearance of tightness.

The location of the shoulder seam varies with the type of garment, with the individual figure, and with the shoulder effect desired. It is often placed low in front to produce a square-shouldered or yoke effect. The epaulet shoulder, which is a yoke cut as part of a set-in sleeve, has two seams parallel to the normal shoulder line.

The normal shoulder seam should be a straight line from the highest point at the neck to one-half inch back of the highest point on the tip of the shoulder.

(Figs. 2 and 6.) A good method of locating this line is to lay a pencil from the neck to the tip of the shoulder. This seam line should not be visible from either the front or the back when the garment is worn. In the kimono type, it continues over the tip of the shoulder and straight down the arm as it hangs naturally at the side. (Fig. 3.)

If a person is round shouldered, the line should be placed slightly back of its normal position. This will give a more erect appearance to the figure. Placing it on top or to the front will emphasize round shoulders. On the very erect type, this seam is more becoming directly on top of the shoulder. The shoulder of a garment should be wide enough that the set-in sleeve will not be brought up on the shoulder thus giving a pinched effect. Yet the shoulder should be narrow enough that the sleeve does not fall below the shoulder tip and give a drooped appearance. (Fig. 4.)

The fit of a kimono-style garment will be improved if it has a shoulder seam. If the pattern has not allowed for one, make a fold in the pattern or in the material directly on top of the shoulder. (Fig. 3.) Measure down 1 to 3 inches from this fold at the sleeve

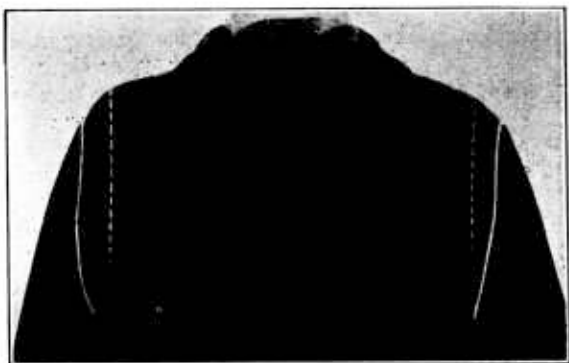


FIG. 4.—Shoulders of dress too wide, giving the effect of broad, drooping shoulders. Dotted lines show where arm-seam should be located

end, the width depending on the slope of the shoulders. Draw a line from this point to the point where the fold meets the neck line. This seam will help to adjust the costume to the figure. When this alteration is made let out the underarm seam the same width as was taken off the shoulder. In case this is impossible, set in a gusset to make

the armhole the correct size. The hang of the underarm seam should be tested in a kimono dress before it is basted. (See "Neck and shoulders sliding back," p. 12.)

In basting the shoulder seam, the back of the waist should be held toward the worker. The back shoulder should be about one-half inch longer than the front. By easing in this extra fullness the entire length of the seam, the shoulder blades are fitted more perfectly. In woolen materials it is well to shrink out this fullness after the shoulders have been fitted and before the seam is stitched.

When fitting the shoulders, begin at the neck and work toward the armholes, keeping in mind that the lengthwise threads of the cloth must be parallel to the center front and back of the figure and the crosswise threads parallel to the floor. The exception to this is that on a large figure the crosswise

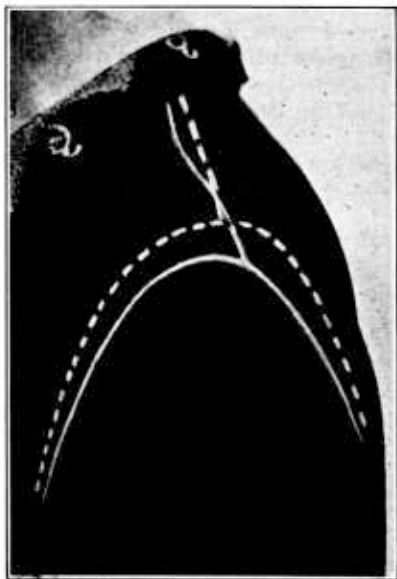


FIG. 5.—Incorrect shoulder and armhole lines in a dress with set-in sleeves. Dotted lines show correct location. (See Fig. 4.)

threads over the bust will slant slightly downward as they approach the underarm seams. Either the front or the back of the shoulder or both may need to be altered, but it is best to make the change which will not alter the armhole.

The following are some of the defects which may be found in the shoulders of a garment, with a suggested remedy for each:

**Shoulder line incorrectly located.**—Examples of this defect are found in Figures 5 and 8, A. Open the shoulder seam and lift or let out the back or the front or both until the line falls in the correct place as described previously (see p. 7).

**Diagonal wrinkles from armhole to neck end of shoulder seam.**—These wrinkles (fig. 7, A) result when the shoulders are more sloping than the shoulder line of the garment, thus allowing it to sag on the figure. If the seam is wide enough, rip it and make it narrower at the neck, gradually widening it to normal toward the armhole. This will not change the size of the armhole. If the seam is not wide enough to permit this, widen it at the armhole end until the wrinkles have disappeared. This alteration may make the armhole too high under the arm. (See "Armhole too high under arm," p. 22.)

**Diagonal wrinkles from tip of shoulder to center front or center back.**—This defect is caused by shoulders being less sloping than the

shoulder line of the garment. Rip the shoulder seam, make it wider at the neck, and slope it gradually to the tip of the shoulder. This will make a smaller neck which may be altered as necessary. (See "Neck too small or too high," p. 10.) If the seam is wide enough to permit, let it out at the armseye, gradually sloping it toward the neck until the garment fits smoothly. This is the better method for stout figures which may need the extra room in the armseye. Since this alteration may make too large an armseye on slight figures, the first method is better for them.

**Shoulders wrinkling from seam to bust line.**—Rip the shoulder seam, stretch the front edge, and rebaste the seam, easing the back onto the front. Trim off the uneven edges at the neck and armseye. In some cases a small dart or tiny tucks may be made in the front shoulder to remove these wrinkles.

**Shoulders too wide.**—For this defect see Figures 4 and 8, A. Very often in large-sized patterns and ready-made garments the width of the shoulders has been increased in the same proportion as the bust measure. Because the shoulders are a bony structure and the bust is a tissue structure, the shoulders do not necessarily increase in proportion with the bust. Therefore, the garment is apt to be too long on the shoulder and the armseye not in its proper position. This long shoulder tends to give a broad effect to the figure. (Fig. 4.) In the front and back of the pattern fold a small lengthwise dart through the center of the shoulder taking out the necessary amount. Be sure to keep the back shoulder from the neck to the armseye one-half inch longer than the front shoulder. Rip the shoulder seam and recut the armseye from the altered pattern. This preserves the original armseye and is safer than trimming it out. If fullness is desired make tucks or shirring in the front shoulder to take up the extra width.

To alter a ready-made garment, make a small lengthwise dart or a group of tucks in the front shoulder and trim out the armseye in the back.

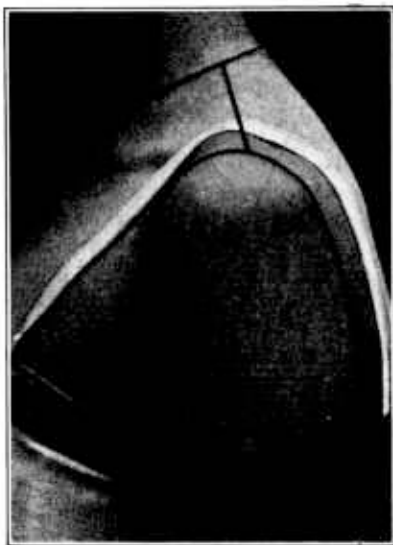


FIG. 6.—Correct positions on the figure for neck, shoulder, and armseye lines

**Shoulders too narrow.**—Build the shoulders of the garment out to the proper width, keeping the threads of the added pieces straight with those in the garment. This alteration is possible only when making a foundation pattern. There is no remedy if the dress itself has been cut incorrectly. The pattern that was used is too narrow across the shoulders. A size large enough to fit the shoulders, regardless of the bust measure, should be obtained, or the pattern which is too narrow may be split from the center of the shoulder to just below the waistline and spread apart the necessary amount. Instead of

splitting the pattern, a fold may be laid in the material in the same position and recut.

**Garment stands away from shoulder.**—Increase the width of the shoulder seam until the garment fits closely to the shoulder, being careful to keep the seam in its correct location. If there is a dip between the neck and the tip of the shoulder, make the seam wider in the center than at the ends.

**Dart bulging at end.**—Any dart that has been made too wide for its length will bulge at the end. Rip out the dart and pin it in the correct width. In some cases the dart may be lengthened instead of made narrower.

#### FITTING THE NECK

After fitting the shoulders, the next part to be adjusted is the neck line. It should form a good curve from the prominent bone at the base of the neck in the back to just above the collar bone in the center front. (Figs. 6 and 16.) The line should be high rather than low in the back and on the sides. A cord may be placed about the neck to help find the correct position. This line in the neck of a dress should fit snugly, but not tightly (fig. 2), and be sufficiently high that when the neckband or collar is pinned to it, there will be no strain anywhere. A  $\frac{3}{8}$ -inch seam allowance is sufficient. When attaching the collar or neckband to the garment, hold the neck edge so that it does not stretch.

For a garment with a close-fitting collar, keep the neck line comparatively high at the back and sides in order that a tailored effect may be obtained. If the collar is placed low it never looks well and makes the neck appear large. (Fig. 4.)

For the person who is plump and rounded at the back of the neck, keep the shoulder line slightly back of its normal position and the neck line high in the back. A slight fullness at the center back of the garment will make it fit better.

The following are some of the defects which may be found in fitting the neck of a garment, with directions for correcting them:

**Neck too small or too high.**—After the shoulder line is correctly located, mark the normal neck line with chalk or a row of pins. (Fig. 8, B.) If the neck is too high, snip the neck edge at right angles every half inch. Be sure to allow three-eighths inch for a seam between the end of the cuts and the normal neck line. When the neck line is in the right position but too tight, let out the shoulder seam if it is wide enough to permit.

**Neck bulging in front.**—If the bulging has been caused by stretching the neck edge, place two rows of small running stitches an eighth of an inch apart at the neck line; draw up the required amount and fasten the threads securely. If the bulge is slight, raising the front at the shoulder seams will suffice.

If the bulge is too large to be altered by either of the above methods (fig. 7, A), open the shoulder seam and slip the front of the shoulder beyond the armseye line until the lengthwise threads are parallel with the center front line (fig. 7, B), build up the neck line and trim out the armseye. (Fig. 7, B, left.) On stout figures the following method is very successful: Leave the armseye unchanged and form the extra fullness into a dart, small tucks, or shir-

ring in the front shoulder. (Fig. 7, B, right.) Then build up the neck line with added pieces. Unless the dress is to have a collar or trimming, only the foundation pattern should be altered in this way.

Never take out a bulge by lapping the fronts unevenly or by making a dart in the center front. In either of these cases the lengthwise threads of the material would not remain parallel with the center front.

If the cause of the bulging is an improperly placed vest, take it out and place it in its proper position, flattening out all wrinkles.

**Neck bulging in back.**—Be sure that the shoulder line is correctly located. If the bulge is small, ease in the extra fullness when finishing the neck edge. If too much extra width to be eased in was added when cutting the back (see "Cutting," p. 4), shirring or a group of tiny tucks will take up the extra fullness. If the bulge is large and caused by an irregularity of pattern or figure (fig. 8, A) rip the shoulder and underarm seams. Raise the back if necessary, smooth out the bulge, and form a new shoulder line.

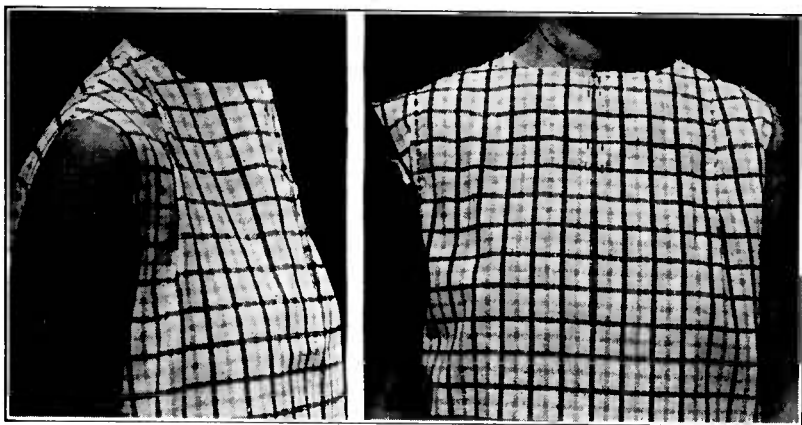


FIG. 7.—A. Wrinkle from neck to armhole due to sloping shoulder. Neck line bulging in front. B. Two methods of correcting neck bulging in front

Build up the neck line at the back or trim it out as required. Trim out the armhole at the shoulder if necessary.

**Neck too large.**—After the shoulder line is correctly placed, build up the neck with fitted pieces according to directions given under "Neck bulging in front," page 10. In some garments the shoulder seams may be made wider in order to remedy a large neck, but very often this method is not successful.

**Horizontal wrinkles at center front of neck.**—The neck of the garment may be too high in front. Snip at right angles to the edge until the correct line is obtained and the wrinkles disappear. Be careful, however, to leave a seam allowance. If these wrinkles occur on a stooped, flat-chested figure, open the shoulder and underarm seams, raise the front, and smooth it out across the chest. Form new shoulder seams and armhole and neck lines. The defect may also be caused by very erect or square shoulders. (See "Diagonal wrinkles from tip of shoulder to center front or center back," p. 8.)

**Horizontal wrinkles across back of neck.**—The neck is probably too high and too tight. These wrinkles may also be the result of an improperly fitted shoulder. Open the shoulder seam and ease the back onto the front, allowing for slight fullness to be gathered into the neckband at the center back. It may be necessary to raise the entire back of the garment to provide this fullness. Build out the shoulder to the correct armseye line if necessary. (See "Adjusting the armseye," p. 21.)

**Neck too narrow in front.**—Open the shoulder seam and slip the front toward the neck without changing the width of the shoulder seam. In some materials the front shoulder edge may also be

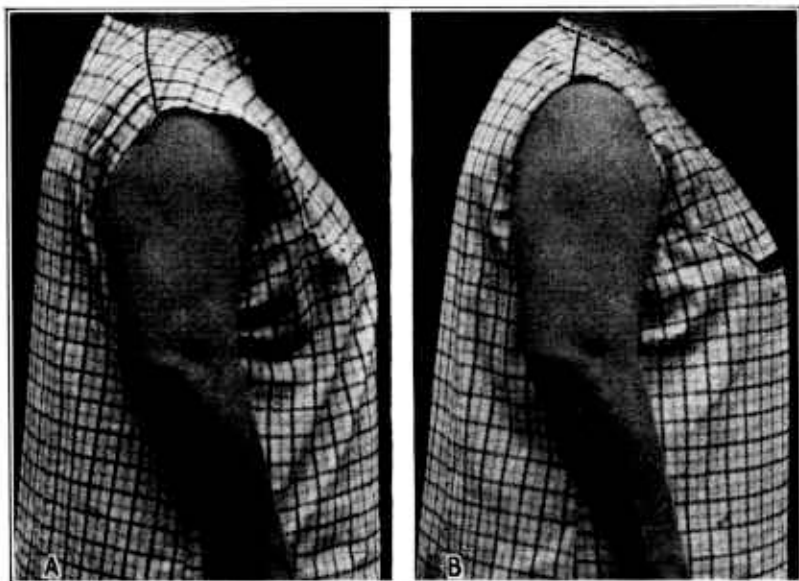


FIG. 8.—A. Defects in a dress cut from a size 48 commercial pattern: Neck bulging in back; neck too large; shoulder line incorrectly located; shoulders too wide; diagonal wrinkles from bust line to underarm seam; waist bulging at front of armseye; too much fullness gathered into front of underarm seam. B. Dress shown in A correctly fitted. A plait one-half inch wide was taken from each center back shoulder to bottom of dress. A dart was made in the front of the shoulder (fig. 11, a). The back of the dress was raised  $1\frac{1}{2}$  inches. Part of the fullness under arm was made into two small darts (fig. 11, b and c). The armholes were trimmed out in back (fig. 9, A). The correct neck line was marked with pins. One-half inch was eased into each back shoulder. The front was slashed and dropped as shown in Figure 12

stretched and rebasted to the back edge to relieve this tightness. Be sure in every case that the lengthwise threads lie parallel with the center front line.

**Neck and shoulders sliding back.**—This fault is most common in dresses and blouses with kimono sleeves although it often occurs in other styles. Either the shoulder line is not well placed, the neck may be cut out too large, or the front and back do not balance at the underarm seam. The difficulty is not usually detected until the garment is worn for the first time. To be sure it will not appear after the dress is finished, test the hang of the dress before the underarm seam is basted. First, be sure the shoulder seam is in its

correct position. (See "Fitting the shoulders," p. 7.) Then observe whether the front and back edges of the underarm seam hang evenly or whether one extends below the other. If the back extends above the front at the armhole (fig. 9, A), and would have to be pulled down in order to be basted according to the pattern markings, then this would cause the dress to slide back at the neck and shoulders. The front and back of a dress should be so balanced on the figure that they are even at the armhole. Then the dress stays in position at the shoulders.

To remedy this defect let the front and back edges of the underarm seam fall naturally from the armpit to the floor. Pin them

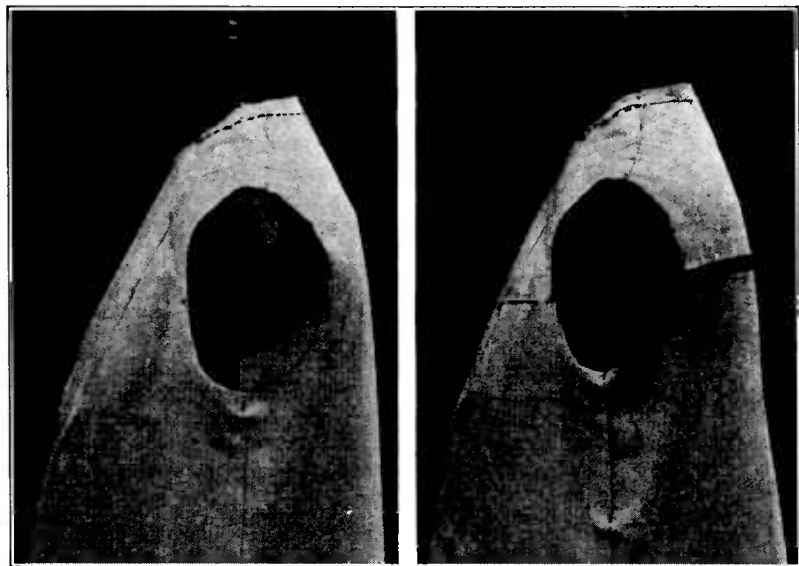


FIG. 9.—A. Method of balancing dress at underarm seam. If this dress had been basted according to pattern markings it would slide back on neck and shoulders. Dotted line shows one method of altering armhole. B. Another method of altering the armhole in A, which does not change the original size but can be done only on a foundation pattern

together in this position and baste. For a slender figure trim out the armhole in the back if the back edge of the underarm seam does not extend more than one-half inch above the front edge. (Fig. 9, A.) If the figure is large or the difference is more than one-half inch, trim out the armhole in the back and increase the width of the shoulder seams or make the following alterations on the foundation pattern: Measure the distance the back edge extends above the front edge of the armhole. Rip out the underarm seam and take out half of this amount in a plait across the chest. (Fig. 9, B.) Let out the other half by cutting a slash across the back, spreading it evenly and adding a piece of material. (Fig. 9, B.) In this method the armhole measurement remains unchanged.

On some figures one or more small darts taken in the front at the underarm seam about 3 inches below the underarm curve, or a dart at the belt line, may keep the neck and shoulders from sliding back.



If the design of the dress causes more weight of material to be in the back than in the front, the neck and shoulders will slide back. Fastening the shoulder seam of the dress to the shoulder strap of an undergarment, sewing weights in the front hem, or placing a semi-fitted lining in the dress will aid in keeping it properly adjusted.

#### FITTING THE BUST, HIPS, AND OTHER PARTS OF THE TRUNK

The underarm seam is the place to make most changes which are necessary on account of irregularities of bust, hips, back, and abdomen. These parts should be fitted after the shoulder seams and the neck line have been properly adjusted. The underarm seam should be directly under the high point of the shoulder and should appear to be a continuation of the shoulder seam. In Figure 10, A and B, underarm seams are shown in correct and incorrect positions.

An allowance of several inches is made on all patterns for looseness at the bust and hips, and any alteration made in the underarm seam should not cause the garment to fit too snugly at any point. If a dress fits too loosely, it is apt to sag under the arms and will be neither comfortable nor neat. If the underarm seam is placed too far back, it will make the bust appear more prominent and give the back a narrow appearance.

Before pinning or basting the underarm seam, test as described on page 12, "Neck and shoulders sliding back." When basting, a little fullness eased into the front of this seam for the first 10 inches below the armhole will make a garment set better whether it has a set-in or a kimono sleeve. Small darts will serve the same purpose. (Fig. 11, *b* and *c*.) This fullness must be only in the front, otherwise the underarm seam will swing toward the front.

On stout figures the crosswise threads of the material may slant slightly downward near the underarm seams. However, the general rule holds that these threads should be parallel to the floor in the center front. The garment should fit easily across the bust with some looseness. Care should be taken not to fit any garment too tightly across the back or the bust.

The figure with large bust and small hips and abdomen should be fitted loosely below the bust line in order not to exaggerate the size of the bust. Large hips seem smaller if the waist is fitted loosely, especially under the arms. The figure with a large abdomen is the most difficult to fit, especially if the bust is small.

Skirts may be sewed onto a semifitted waist or onto a fitted belt. In either case pin the skirt to the belt or waist, keeping the center back and the center front of the skirt on the corresponding points of the belt with the openings together. The skirt should hang straight down without slanting to the front or back. Then the side seams will all be perpendicular to the floor unless the skirt is circular. The belt line should be slightly lower in front than in the back. Fullness is adjusted by a gathering thread or plaits. In laying plaits, use a tape measure to keep them even. They should be parallel with the center front and back and with the side seams. The outer edge of most plaits is on the straight of the material. Side seams in a skirt are usually in the same position as the lower part of the underarm seams of a one-piece dress. (Fig. 10, B.) In

general, finish the top before adjusting the length, whether the skirt is made on a belt or a waist. In skirts that must be straight at the lower edge, such as plaited ones and those of bordered materials, finish the lower edge before the skirt is hung, and make the necessary adjustments at the belt.

If there is extra fullness in a skirt, take it out equally at the side seams, keeping the material hanging straight. Most altering will be done at the hips. Fullness is usually distributed at the sides, leaving the back and front plain, though this varies with fashion.

In addition to these general points, the following special ones are often met:

**Dress too loose at bust and hips.**—Make the underarm seam wider. If only the back of the garment is too wide, alter only the back edge of the underarm seam. This change is best for a garment that is only slightly too large.

If a garment is very loose below the bust line and also measures too large around the bottom, it may be recut after altering the paper pattern, as follows: Fold two lengthwise darts in the pattern, one in the back and one in the front, beginning at the bust line or just below it and continuing to the bottom of the skirt. The width of these darts will be determined by the amount of material to be taken out. They should taper so slightly that the pattern will lie flat. This alteration lowers the armseye.

Cut it higher when recutting the garment. Be careful not to make the width of the skirt at the bottom narrower than the bust measure. This method should never be used to make the underarm seam fall straight from the under arm, as it can not be done successfully in this way. However, it is effective in fitting figures with hips small in proportion to the bust. Do not make the hip measure of the dress too small because this makes the bust seem larger.



FIG. 10.—A. Underarm seam slanting toward front. Sleeve wrinkling from top to under arm. B. Dress shown in A correctly fitted. Entire back of dress raised  $1\frac{1}{2}$  inches and front edge of underarm seam eased onto the back edge for several inches below armseye. Armseye of dress recut as in Figure 9, A. Sleeve cut three-fourths of an inch lower under arm.

If the garment is too large all over, lay plaits the entire length of the front and back pattern from the center of the shoulder to the bottom and parallel to the center front and back. The width of the plaits will be determined by the amount to be taken out. Recut the garment from the altered pattern.

**Underarm seams slanting toward back.**—The back of the dress or blouse swings away from the figure if the underarm seams fall toward the back. Rip the shoulder and underarm seams, and raise

the back of the garment at the shoulder without altering the neck line. At the underarm seam this will bring the back higher than the front, and after the seam is basted the armscye must be recut.

**Underarm seam slanting toward front.**—This defect will always make the skirt swing out in front. (Fig. 10, A.) There are several ways of correcting it.

Open the underarm seam and take a dart parallel to the floor about 3 to 5 inches long on the front edge at the belt line (fig. 11, *d*) or at the fullest part of the bust (fig. 11, *b* and *c*). One or more darts in either of these places, or both, are especially needed in dresses for stout figures, but a small dart under the arm improves the hang of any dress. The width of the darts will vary with the figure and with the number needed. Sometimes gathers are used (fig. 8, A), but are not so satisfactory unless the fullness is slight.

Another method that is effective on large figures is as follows: Rip the entire underarm seam and the shoulder seam two-thirds of the way from the armscye to the neck. Raise the front at the shoulder, without altering the neck line

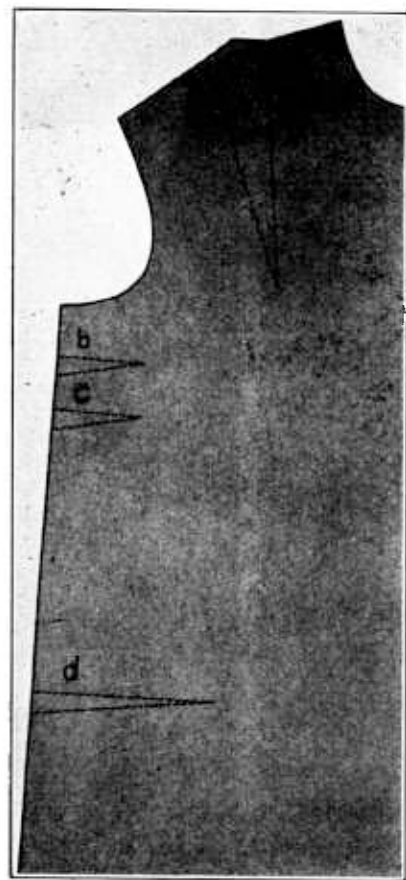


FIG. 11.—Diagram showing the correct placing of darts; *a*, shoulder dart; *b* and *c*, underarm darts; *d*, hip dart

Lay the fullness thus obtained in a dart from the shoulder seam to the bust line and parallel to the center front. (Fig. 11, *a*.) Unless the shoulder has been cut too wide, this change can be made only on the foundation pattern. Build out the shoulder and form a new armscye as shown in Figure 19. Tucks or shirring may be used instead of a dart. If other darts are necessary, make them at the belt line rather than under the arm. Darts will not correct this difficulty in every case; for example, in a garment with a bust line higher than that of the figure. (See next section.)

**Diagonal wrinkles from bust line to underarm seam; garment swings to front.**—These wrinkles may be found in fitting the figure which is much narrower across the back than across the chest or which has sloping shoulders. (See next section.) However, on a very erect person with an unusually large bust, whether a large or a small figure, the bust line of the garment may be higher than that of the figure, thus causing these folds. (Fig. 8, A.) In this case darts on the underarm seam will not correct them, and the following changes can be made only on a foundation or paper pattern.

Make a slash straight across the center third of the front at the bust line, continuing it diagonally to within a half inch of the armseye, as shown in Figure 8, B. Let the garment spread below the slash until the wrinkles disappear and it hangs straight in front. Insert a piece of cloth to fill in the opening. When altered by this method the foundation pattern must be cut down the center front fold and more material added in the front to straighten the line from the neck to the bottom of the dress. (Fig. 12.) Use the original underarm seam (fig. 12, *b*) if no more width is needed at the bottom or if the figure has small hips in proportion to the bust.

**Dress sagging under arm.**—Diagonal folds will appear on either or both sides of the underarm seam. (Fig. 8, A.) Very often in ready-made coats and dresses these diagonal folds appear in the back from the shoulder blades to the underarm seam. They are caused by sloping shoulders (see "Diagonal wrinkles from armhole to neck end of shoulder seam," p. 8), by the shoulder of the garment being too wide (see "Shoulders too wide," p. 9), or by the garment being too large (see "Dress too loose at bust and hips," p. 15). If the sagging folds appear only in front, rip the underarm seam and fold in one or two darts (fig. 11, *b* and *c*) on the front edge near the armseye, or a shoulder dart (fig. 11, *a*) may correct the defect. If only the back sags, rip the shoulder and underarm seams, lift the back above the front, baste the seams, and mark a new armseye line in the back. If the folds appear in both the back and the front, increase the width of the shoulder seam at the armseye end until the wrinkles disappear. Recut the armseye.

**Dress too small at bust and hips.**—Let out the underarm seam, or if the garment is long enough, raise it at the shoulders until it is not tight at the bust and hips. The latter method can be used only when the shoulders have been cut too wide. These methods may be used if the garment is but slightly too small.

If after testing a pattern it is found that only the hip measure is too small, add width to the garment by slanting the underarm seams gradually from the armseye to the bottom of the skirt. As much as 2 inches may be added to each seam. Add the same amount to both the back and the front seam edges. (Fig. 14, *b*.) For a large woman who needs much fullness in the back of the skirt, lay plaits down the center back and allow them to fall loose below the belt.

Fullness may be added at the hip line when cutting the dress by slashing the back and front at right angles to the underarm seam at the belt line. (Fig. 14, *c*.) Add an extension below the slash. Plait or gather in this fullness to the upper edge of the slash. To add fullness to the bust in a similar way, cut a slash near the center front of the armseye and at right angles to it. (Fig. 15, *ab*.)

Extend the lower edge of the slash (fig. 15) and gather it to the upper edge. (Fig. 13.)

Another method of adding fullness when cutting out the garment is to swing the center front edge of the pattern from one-fourth inch to 3 inches off the lengthwise fold of the goods at the bottom, but keep it on the fold at the neck line. Another method is to cut the garment with a lengthwise dart folded in the material from the shoulder to the bottom. Let the dart start at the tip of the shoulder and increase in width from 1 to 2 inches at the bottom. One edge of the dart must always be on the straight of the cloth. By these methods the same amount of fullness can be added as when the pattern is split through the center, but the position of the shoulder and armseye lines will be changed from the original pattern. If the abdomen is large, either of these methods is satisfactory.

If the dress is cut out and none of the above methods can be used, insert an inverted box plait or gathered portion in

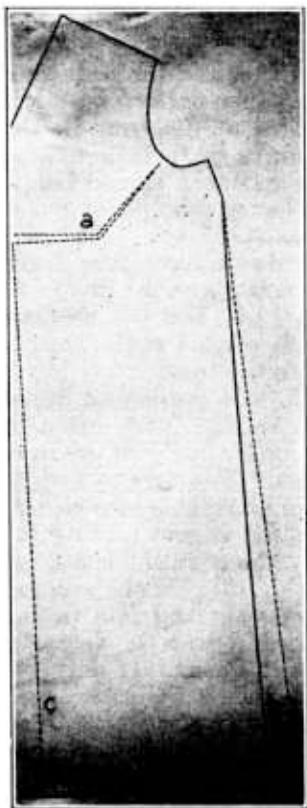


FIG. 12.—Method of altering foundation or paper pattern for diagonal wrinkles from bust line to underarm seam. (See fig. 8, A and B)

the underarm seam from the belt line to the bottom of the skirt or insert a gusset from the armhole to the bottom of the garment, placing the point at the armhole. If only the front is narrow, set in a panel the entire length of the front. These methods are apt to give a patched effect unless they are skillfully managed.

The following alteration can be made only on the pattern. Split the back and front of the pattern up to within one-fourth inch of the center of the shoulder and spread the pattern apart at the bot-

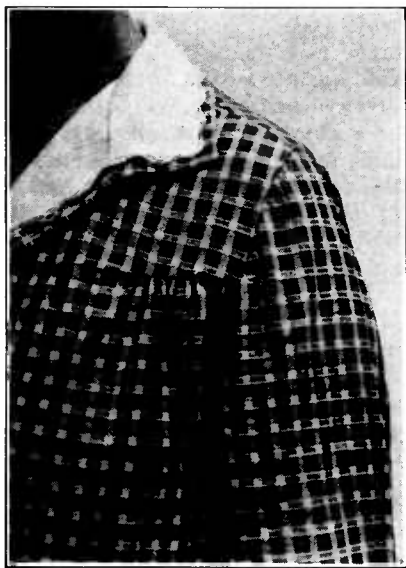


FIG. 13.—Method of adding fullness at bust line. See Figure 15 for method of cutting. Correct armseye and sleeve lines. Note that the threads of material over the upper arm and across the bust are parallel to the floor

tom until the necessary width has been added. These cuts should be parallel with the center front and the center back.

**Waist too tight across back.**—The most successful remedy for this difficulty is to rip out the sleeves and set them in a lining. Shaped pieces of the dress material, about 2 inches wide, should be basted around the armseye on the right side of the lining before setting in the sleeve. This prevents the lining from showing at the armseye. Bind or face the armholes of the dress.

If this method is not desirable and the style of the dress will permit, set a panel of material or of trimming in the center back.

As a last resort, cut a new back as follows: Lay a small lengthwise fold in the material from the center of the shoulder to the bottom, parallel with the center back, or split the pattern on the same line and spread it the required amount. This alteration is likely to make the shoulders too wide. (See "Shoulders too wide," p. 9).



FIG. 15.—Method of altering pattern to add fullness at the bust line. See Figure 13 for finished garment. Solid lines show original pattern. Extra fullness is gathered to slash *ab*. Dotted lines show dart and new cutting line

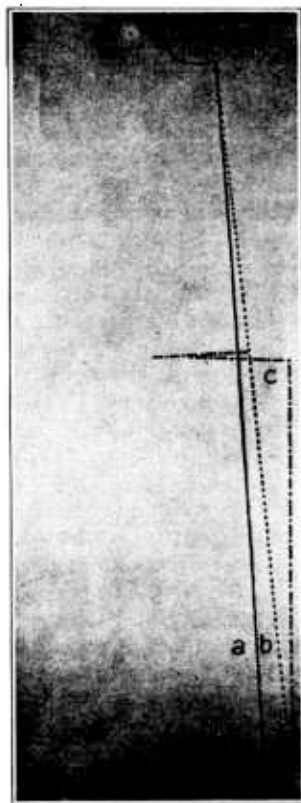


FIG. 14.—Methods of adding width at the hip line; *a*, original pattern; *b*, extended underarm seam; *c*, method of adding gathers and width

#### Waist drawing in under arm.—

The armseye may be too high and narrow, the sleeve may be too small for the armseye, or the waist may be fitted too closely under the arm. The defect appears most often in figures with a large bust. To remedy, trim the armhole lower under the arm (see "Armseye too high under arm," p. 22), or widen the armseye by letting out the underarm seam or by setting a strip of

material in the seam if there is no extra seam allowance. If these changes are made, increase the size of the sleeve by letting out the seam or setting in a gusset from the armhole to the elbow.

**Horizontal wrinkles across chest.**—These wrinkles are most likely to appear on thin figures if the measure from armhole to armhole across the chest of the pattern is too narrow. A pattern with a wider shoulder should have been used. The sleeves may be ripped out and set in a lining (see "Waist too tight across back," p. 19), or a vest or a panel may be set in the full length of the front. These are the only ways of correcting such a defect after the garment has been cut. To alter the foundation pattern, split each side of the center front from the center of the shoulders and parallel to the center front. Add the necessary width to the entire length of the garment. This may make the shoulders too wide. (See "Shoulders too wide," p. 9.)

**Skirt drawing across abdomen.**—The side seams may not be correctly placed, too much fullness may have been drawn to the back and should be redistributed, or the skirt may not have been cut to fit the figure with a large abdomen.

For the figure with a large abdomen, mark the front of the skirt 7 inches below the normal waistline on the hip seam and make a dart at this point perpendicular to the seam, about one-half inch wide and several inches long. A dart of this kind on each side of the skirt will also prevent it from pushing forward at the bottom. Do not lift the back to correct this as it pulls the skirt seams out of place.

To make a maternity skirt or one for a large abdomen cut it an inch or more higher at the top in the center front and decrease this width gradually to nothing at the center back. This makes the skirt straight around the figure at the waist and also makes it hang properly. Also make the skirt larger around the top by adding width to the gores from the hip line up. The shape of the skirt will be spoiled if the bottom is not at least as wide as the hip measure.

**Skirt cups in at back.**—Raise the skirt on the belt at the back so the gathers will hang straight from the belt to the hem. If a one-piece dress needs this alteration, raise the entire back at the shoulder seams. (Fig. 10, A and B.)

**Skirt seams swinging toward front or back.**—If the skirt swings toward the front hold the front edge slightly full for the first 10 inches from the belt line, when basting the side seam. If the seam slopes much, a small dart may be made on each side of the front underneath the belt. The skirt may also be raised slightly in the back, or lowered slightly in front. If it has a tendency to swing out in the back, this may be corrected by lowering the back or by raising the sides and front, or both.

**Skirt too large at hips.**—If there are two or more seams take out the fullness at the seams. If there are no seams, fullness may be taken out in vertical darts which extend down from the belt line. The position of these darts will depend on the size of the figure. On slender figures make the darts on the hip line. For maternity wear or for a figure with large hips or abdomen divide the skirt into quarters, marking these points at center front, center back, and hips. Place a dart at the center of each quarter.

**Skirt too small at hips.**—If extra allowance has been made on the side seams, let the seams out. If the skirt is gored and it is long enough, lift the skirt and form a new waistline. If the skirt is not gored, add an extra width of material to the entire length.

## FITTING THE ARMS

## ADJUSTING THE ARMSCYE

The location of the armscye and the fitting of the sleeve into the armscye are two very important steps in the fitting of a garment. The armscye seam when viewed from the side should show a good curve over the top of the shoulder. (Figs. 2 and 6.) When viewed from the front, the armscye seam should lie parallel to the center front (figs. 16 and 17), and when viewed from the back it should be parallel to the center back of the garment. (Figs. 4 and 18.) The armscye seam should pass over the tip or highest point of the shoulder bone and from this point make a straight line back and front to the crease formed where the arms join the body. (Figs. 13 and 16.)

With close-fitting sleeves the armscye seam should curve to fit the underarm as closely as is comfortable and must be on the highest point of the shoulder. If the tight-fitting sleeve is set in a wide shoulder, the sleeve will bind the arm and pull at the seam. If it is put into an arm-



FIG. 16.—Correct location on the figure for armscye and neck lines. Front view

scye that is too large underneath, the dress will pull across the bust. Stout figures require a closer-fitting armscye and one that is higher under the arm than do the more slender types.

The shoulder may be wider for a shirt sleeve, extending slightly beyond the tip of the shoulder. The shirt sleeve does not fit so closely as the other types of set-in sleeves. The armhole should be fitted rather loosely for the figure with very round shoulders.

If the armscye is altered, the sleeve will also need to be altered in order to keep the same relation between the edge of the sleeve and the armscye. Before altering the armscye in any way, be sure that the shoulder seam is in its correct position. (Figs. 2 and 6.) Mark the highest point of the armscye when the garment is being fitted. This point may be at the shoulder seam, but it is most likely to be one-half inch in front of it.

Some of the following alterations may need to be made in fitting the armscye:

**Armscye too small.**—Either the shoulder and underarm seams are taken in too much or the armscye has been cut too small. Let out the shoulder and underarm seams, or only the shoulder seam, depending on how much room is needed. If it is still too small, mark the correct armscye line (fig. 5) with crayon, basting, or pins. Snip the edge at right angles every half inch, being careful to leave



three-eighths inch for a seam allowance and not to cut beyond the correct location for the armscye.

**Armscye too high under arm.**—After the neck and shoulders have been fitted, snip the edge of the armscye at right angles under the arm until it feels comfortable. Care must be taken not to make the



FIG. 17.—Correct armscye lines on a garment with set-in sleeves, as viewed from the front

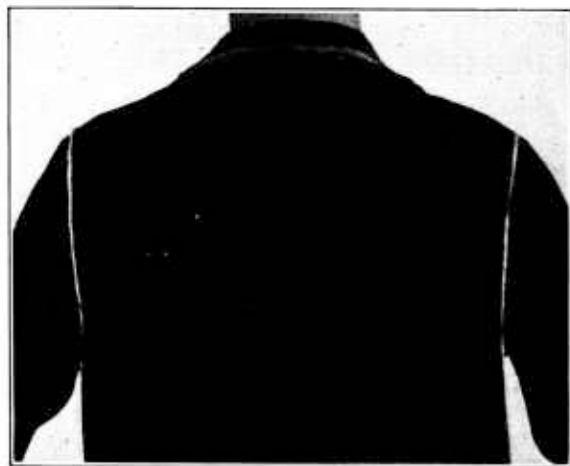


FIG. 18.—Correct armscye lines on a garment with set-in sleeves, as viewed from the back. For side view, see Figure 2

armscye too low or too wide at the under arm. All bulges should be remedied before the size of the armhole is changed.

**Armscye too large.**—In most instances this defect can be remedied by taking wider shoulder and underarm seams, or it may be necessary to alter only one or the other. However, if the armscye tends to bulge at the front (fig. 8, A), or the back, or both, taking in the seams will not suffice. (See next section.)

**Waist bulging at front of armscye.**—These bulges are often caused by incorrect proportion from the shoulder to the under arm or they may be found on an erect figure with a large bust. If the bulge is small, take a small diagonal dart in the pattern from the armscye toward the tip of the bust and

recut the armscye. In some materials a slight bulge may be removed by shrinking out the extra fullness or easing it into the seam.

For the erect, large-busted figure a dart placed from the shoulder to the bust line is the best remedy. If the shoulder is too wide, this change can be made on the garment. Rip the shoulder seam and form the dart wide enough to remove the bulge at the armscye. (Fig. 19.) If the shoulder is too narrow, make this change only on

the foundation pattern. After laying the dart as described above, widen the front of the shoulder at the armseye. (Fig. 19.)

Another method which can be used on the foundation pattern is to open the underarm seam and drop the front lower than the back. Build up the front even with the back and form a small dart in the front under the arm (fig. 11, *b*) to prevent the underarm seam from swinging forward.

**Waist bulging at back of armscye.**—Round shoulders will always cause a loose armhole at the back. If the bulge is small, rip the shoulder seam three-fourths of the distance from the armscye to the neck and move the back up on the front, thus taking a wider seam off the back than off the front at the shoulder end. Be sure in doing this not to move the shoulder seam out of its correct position. (Figs. 2 and 6.)

Another simple method is to recut the back after folding a small dart in the pattern at right angles to and through the center back of the armscye. If there is a large bulge which can not be removed by either of the above methods, as a last resort make a dart in the same position in the dress. In woolen materials the fullness may be gathered and shrunk out until the bulge has entirely disappeared.

A method which can be used only on the paper or muslin pattern is to cut a slash one-third of the distance across the center of the back over the shoulder blades. Continue each end of the slash downward diagonally to within one-half inch of the armhole and let the garment drop until the bulge is removed and the back hangs straight. The more stooped or round shouldered the figure the wider the slash will need to be spread. Insert a piece of cloth to fill this space. Since this spoils the center line, cut the foundation pattern down the center back, lay it flat, and add a strip of material to straighten the line from the neck to the bottom of the dress. This alteration is the same in principle as that for "Diagonal wrinkles from bust line to underarm seam," page 17. (Figs. 8, B, and 12.)

**Armscye located beyond tip of shoulder.**—Examples of this defect are shown in Figures 4 and 5. (See "Shoulders too wide," p. 9.)

**Wrinkles from tip of bust to armscye.**—These wrinkles sometimes appear if the figure has a large bust and is flat chested. Rip the



FIG. 19.—Method of removing a bulge from the front of the armscye (Fig. 8, A). Small tucks or shirring may be used instead of a dart

shoulder seam two-thirds of the distance from the armseye to the neck and form a dart, tucks, or shirring in the front shoulder, according to the directions given under "Waist bulging at front of armseye," page 22. (See Fig. 19.)

#### SETTING IN THE SLEEVE

The fit of sleeves depends first of all on having the correct armseye line, as discussed in the preceding section. It is also determined by the accuracy with which the sleeves were cut from the pattern (see "Cutting," p. 4), by the method used in attaching them to the armseye, and by the cut and style of the sleeve used. Too much emphasis can not be placed on this part of garment fitting.

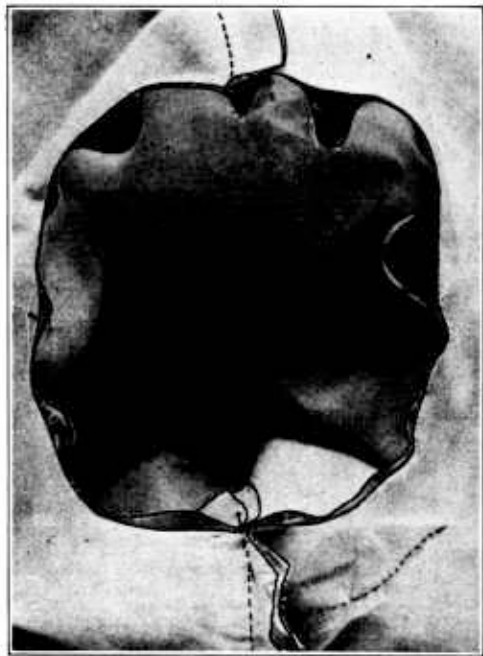


FIG. 20.—Sleeve pinned into the armseye at the quarter points, showing the relative lengths of the two edges

When properly placed in the armseye, a set-in sleeve should have no fullness on the lower half of the armseye except in the case of very fleshy arms, when some extra room is needed. There is seldom any gathering over the upper half, although the sleeve edge should always measure an inch or more longer than the edge of the armseye. (Fig. 20.) This is eased in when the sleeve is set in and prevents an unattractive and uncomfortable strain across the arm.

After all other parts of the garment have been fitted and the sleeve has been made, baste it into the armseye as follows:

Locate the highest and the lowest points on the armhole line of the sleeve. These are the only points on the sleeve edge where it is not bias, if the sleeve has been cut correctly. Then locate the quarter points of the armseye. To do this, fold from the high point of the shoulder (see "Adjusting the armseye," p. 21) to the opposite or lowest point of the armseye, and mark these points with pins. Place the highest and lowest points together and thus locate the quarter points. The upper and lower halves will also be established. Some like to use the notches found on the commercial pattern. If no alterations have been made in the fitting, these notches may be right. However, a sleeve does not always fit well if the original pattern markings are used. Therefore it is well to locate and connect the highest and lowest points on both the armseye and the sleeve. (Fig. 20.) This is the method the inexperienced should use, especially

when working alone. The sleeves may also be located in the armscye while the garment is on the figure.

To determine which is the right or the left sleeve, fold it through the center lengthwise with the sleeve seam edges together. In the shirt or middy-blouse type the armscye edges coincide and either sleeve may be placed in either armhole, provided there is no right and left finish at the bottom. The sleeve and underarm seams will be continuous. If one side of the sleeve is only slightly higher than the other (fig. 22, B) and the top curve of the front and the back lie in the same general direction, the high side is the back. The underarm and sleeve seam will also be continuous in this type of sleeve. If one side is very much higher than the other and the curves at the top do not lie in the same general direction, the high side is the front. This sleeve seam will be placed about  $1\frac{1}{2}$  inches in front of the underarm seam. This latter type of sleeve is almost never found at the present time.

Place each sleeve in its correct armscye, having the right or wrong side of the garment out, depending on which side the first seam will be stitched. For a felled or French seam, the first stitching is made on the right



FIG. 21.—Correct position for holding the armscye seam while basting in the sleeve. The fullness is eased in over the top half (fig. 20), thus forming the ruffled edge

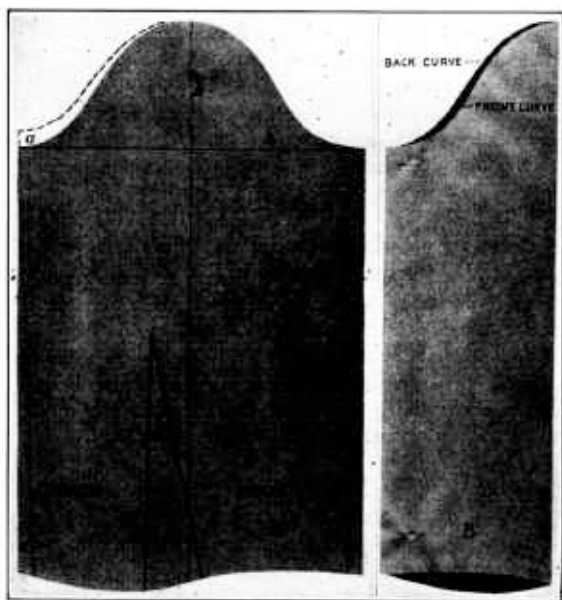


FIG. 22.—A. Diagram showing some sleeve alterations; *a*, portion that may be added when cutting sleeve for large upper arm; *b* and *c*, position of lengthwise and crosswise threads of material when cutting a sleeve; *d* and *e*, position of dart and alteration of sleeve seam to make a tight-fitted one-piece sleeve. B. Sleeve having seam continuous with underarm seam, folded through center to show differences in the curves at the top and bottom. Black portions are the back of the sleeve extending beyond the front

side of the garment and the sleeve is wrong side out as it is drawn up into the armscye. When the seams are to be stitched on the wrong side of the garment first, the sleeve is right side out when placed into the armscye. Pin the highest and lowest points of sleeve and armscye together, and pin the sleeve to the quarter points of the armscye so that there is only slight fullness in the lower half of the sleeve. This will leave most of the fullness in the top half. (Fig. 20.) Place the pins at right angles to the armscye edges and pointing toward the cuff of the sleeve. (Fig. 20.)

Hold the sleeve side of the seam toward the worker when connecting these points and when basting the sleeve in position. Hold the edges in place with the left hand. With the thumb on the sleeve side, ease in the extra length of the sleeve by pushing the material in place with the thumb while basting. (Fig. 21.) The ruffled edge of the sleeve thus formed does not indicate that there are gathers over the top. Be careful not to stretch the rounded top of the sleeve edge at any time.

With some material, especially wool, it is necessary to place two rows of fine gathering over the top of the sleeve and adjust the size to the armscye. Before the sleeve is stitched, shrink these gathers out by steaming over a pressing cushion with a damp cloth.

The epaulet sleeve is set into the armhole in the same general manner as raglan sleeves although in some styles or cuts it is very difficult to fit and to make so that it is attractive on the figure. Raglan sleeves are most easily and satisfactorily set in by following the pattern markings. Large draped sleeves such as the dolman type, should also be set in according to directions given with the pattern, provided the shoulder line is correct.

#### ADJUSTING THE SLEEVE

The fit of a sleeve depends in a large measure on the type and the cut of the pattern in relation to the figure of the wearer. The two most common types are the set-in and the kimono sleeve, although there are many variations of each. Some of these are better suited to certain types of figures than others. For example, raglan sleeves have a tendency to make the wearer look round-shouldered, and set-in sleeves are more satisfactory on stout figures than are kimono sleeves. Set-in sleeves break the line at the shoulder of a garment and allow the waist to conform somewhat better to the lines of the figure under the arm. Long slight arms require sleeves that are almost straight, whereas muscular or fleshy arms need sleeves that are more curved on the underarm seam and have more room for the bend at the elbow.

Even though the correct type of sleeve is chosen the proportions of the pattern may not be the same as those of the arm. For example, if the top curve of the sleeve is too high or too low the sleeve will be ill-fitting unless carefully altered.

The set-in sleeve is the most difficult to fit. The simplest style and the one that gives the least trouble is the shirt sleeve which is used on some house dresses and on middy blouses, men's shirts, and children's clothes. It is not so trim as the more snugly fitted set-in sleeve, but the looseness is desirable for these garments.

When properly cut and fitted the set-in sleeve should hang straight from the tip of the shoulder (fig. 13) and neither the waist nor the sleeve should feel tight or should draw at any place when the arm

is in any natural position. If the correct points on the sleeve and armseye have been used in setting in the sleeves (p. 24), and they were cut carefully, the lengthwise threads of the cloth will run in vertical lines from the top of the shoulder to the elbow. The crosswise threads will run parallel to the floor at the level of the armpit (fig. 13). With properly fitted sleeves it will be possible to place either hand on the opposite shoulder without discomfort. There will be ample length from elbow to wrist in this position or when the arm is bent. Also there will be sufficient length from the elbow to the back of the armseye; otherwise the sleeve is likely to pull at the armhole before the garment is worn out. The inside sleeve seam should be in line with the thumb when the hand hangs naturally at the side.

Measures taken of the arm should check closely with those of the pattern. A sleeve that is short from the shoulder to the level of the armpit and the wrinkles thus resulting are shown in Figures 10, A, and 23. For comfort, a sleeve should be 2 inches or more wider than the measurement of the upper arm. Freedom at the elbow is also essential in a close-fitting sleeve.

The kimono sleeve which is cut in one piece with the dress or blouse requires little fitting. If a long, fairly close-fitting sleeve is desired in a kimono dress, a small dart is needed at the elbow on the underside. This provides more fullness and, therefore, more freedom. This type of sleeve should never be made tight at the underarm. The kimono sleeve should not be overfitted. Its success lies in its freedom of line and in the ease of its fit. If correctly fitted a fold will begin near the tip of the shoulder and fall straight to the waistline in both the front and the back. (Fig. 3.) This fold should never be fitted out.

Some of the defects found in sleeves and methods of correcting them are as follows:

**Sleeve too large at armseye.**—This difficulty is not likely to occur unless the armseye has been made smaller than the pattern. If the difference is less than 1 inch, take out the extra width at the sleeve seam. If more than 1 inch needs to be taken out, recut the sleeve after altering the pattern so that half of the excess width is taken from the underarm seam and the remaining half from the center of the sleeve. (See "Sleeve wrinkling from top to under arm," p. 28.)

**Sleeve too large at bottom.**—Widen the seam until the sleeve is the desired width. If a tight-fitting sleeve is wanted, fold a dart from the wrist to the elbow as follows:

Draw a line from a point  $1\frac{1}{2}$  inches back from the center fold of the sleeve at the elbow to a point one-half inch in front of the center fold at the wrist. (Fig. 22, A, *d*.) This line is folded over on the back of the sleeve until a large enough dart has been taken to make the sleeve fit the lower arm closely. Gradually increase the width of the sleeve seam from top to bottom. (Fig. 22, A, *e*.)

**Twisting sleeve.**—The sleeve may be set in the armseye incorrectly, the straight of the pattern may not have been kept on the straight of the material when cutting (see "Cutting," p. 4), or the pattern itself may be at fault. Directions for setting in sleeves are given on pages 24 to 26.

If the sleeve twists toward the front, open the seam of the sleeve and the lower half of the armseye seam and raise the back of the sleeve on the front about one-half inch. If the sleeve twists toward the back, raise the front on the back in this same way.

If the sleeve pattern has not been placed correctly on the material, recutting it and piecing the edges, or recutting the sleeve from new material is the only remedy.

**Sleeve wrinkling from top to under arm.**—The crosswise threads of the sleeve curve upward across the arm at the level of the armpit, folds appear from the top of the sleeve to the under arm, and the sleeve hangs out at the elbow. (Fig. 23.) The shirt or middy-blouse sleeve hangs this way naturally and should not be altered. In other types of set-in sleeves too slight a curve on top is one cause of such wrinkles and should be corrected. Sometimes the distance from the top of the shoulder to the level of the armpit is shorter on the pattern than on the figure. Recut the sleeve, making the curve higher on top, or cut the curve of the sleeve lower under the arm.

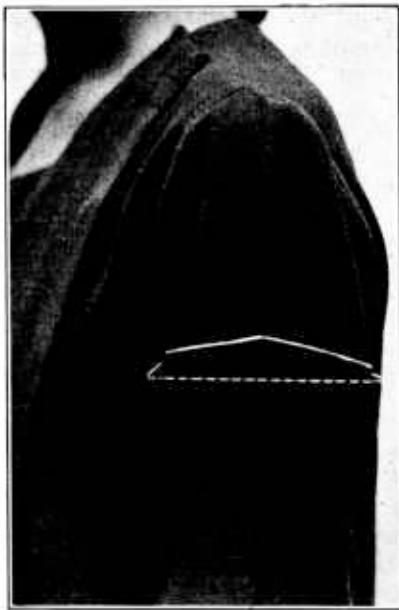


FIG. 23.—Sleeve wrinkling from top to under arm. Sleeve too wide and too short from top to armpit level. Solid line shows upward curve of crosswise threads. Dotted lines show correct line for crosswise threads. (See Fig. 13.)

Either of these methods will make the sleeve higher on top.

Another cause for these wrinkles is that the sleeve may be too large around the arm at the level of the armpit. (Fig. 23.) Increase the width of the sleeve seam and cut the sleeve curve lower under the arm. This prevents the armscye from being made too small as a result of making the sleeve narrower.

Oftentimes these wrinkles are the result of a combination of these two causes, and both must be corrected.

**Sleeve draws across top above level of armpit.**—Whatever the cause of this defect, first be sure the armscye line is correct. (See *Adjusting the armscye*," p. 21.) The sleeve may be in the wrong armhole or it may not be set in correctly. (See *"Setting in the sleeve,"* p. 24.)

Another cause for this defect is that the top curved part of the sleeve is too narrow for the width of the arm. (Fig. 5.) If the width and length of the sleeve

permit, raise the sleeve in the armhole until the top curve can be widened by rounding off the top and cutting the sleeve lower under the arm. This shortens the sleeve.

If the sleeve can be recut from new material, split the pattern through the center from top to bottom and spread it apart half the needed amount. Add the remaining half at the sleeve seam. Cut the curve over the top as much higher as the pattern was spread through the center and make the back curve on the sleeve (fig. 22, B) higher for a fleshy arm than for a slender one. For example, if the sleeve is to be made 2 inches larger around, add one-half inch to each side of the sleeve seam edge, spread the pattern apart 1 inch through the center, make the curve over the top 1 inch higher, and gradually slope it to the underarm line. This may make the top curve too high.

Fit out the extra amount when adjusting it in the armscye. If the extra width is not needed at the seam, use the original seam lines.

**Sleeve binding at back of armscye when arm is bent.**—The waist may be too narrow across the back (see "Waist too tight across back," p. 19), or the back curve of the sleeve at the armscye may be too low. (Fig. 22, B.) This defect is very often found in fitting large fleshy arms. The only remedy without cutting a new sleeve is to let out the seam at the back of the armscye if possible. If a sleeve is cut from new material, make the back curve from one-half to 1 inch higher, decreasing the added width gradually over the top. If the fitting is done on the foundation pattern the sleeve can be pieced.

**Sleeve not hanging straight from shoulder.**—The fullness over the top of the sleeve may need to be readjusted, or the whole sleeve may need to be ripped out, the quarter points located, and the sleeve reset according to directions given on pages 24 to 26.

**Sleeve too short over elbow when arm is bent.**—This fault will be found in fitting a fleshy arm or if the sleeve length from armscye to elbow or from elbow to wrist is too short. The best remedy is to recut the sleeve, making the back of it longer by extending the curves at the top and bottom. (Fig. 22, B.) Another method is to correct the sleeve of the foundation pattern as follows: Compare the arm measurement (taken when bent) with those of the sleeve, and alter the pattern by splitting the pattern crosswise either above or below the elbow, or both. Spread it apart the necessary amount.

If the sleeve can not be recut, add wider cuffs, bands, or trimming around the bottom of the sleeve to make it long enough.

**Sleeve too tight around upper arm.**—If the arm is very fleshy above the elbow, more fullness is often required in the sleeve than needs to be allowed over the top. If the sleeve has been cut and the seams can not be let out, a gusset may be set in the sleeve seam from the armpit to the elbow, placing the point at the elbow. In order that the size of the armscye may not be changed, a small plait may be placed directly under the arm and pressed very flat. This gives freedom for the arm and gives a better appearance than gathering this added fullness into the armscye.

If the sleeve can be recut, one method is to add 1 inch to the back of the sleeve at the top. (Fig. 22, A, a.) Gather this extra inch into the first 2 or 3 inches of the sleeve seam. This slight fullness is not visible when the sleeve is worn.

Another method that may be used when cutting the sleeves is to curve the sleeve seam edges slightly outward between the armscye and the elbow.



FIG. 24.—Horizontal wrinkle around sleeve at level of armpit



If the sleeve is not close fitting at the bottom, cut the pattern through the center from the bottom to within one-fourth inch of the top and spread it the necessary amount. Any of the above three methods do not change the size of the armseye edge of the sleeve.

If the armseye edge must be increased, see "Sleeve draws across top above level of armpit," p. 28.

**Sleeve puffs at top.**—The fullness may not be well adjusted (see "Setting in the sleeve," p. 24), the armseye may not be correctly located (see "Adjusting the armseye," p. 21), the armseye seam may not be turned toward the neck, or the top curve of the sleeve may be too high. If this curve is too high, rip out the top half of the armseye seam and take a wider seam in the top of the sleeve but not in the armseye of the dress.

**Sleeve puffs at back or front near armseye.**—If the armseye is correctly located (fig. 2) and the sleeve puffs in the back at the armseye, the back curve of the sleeve is too high (fig. 22, B). Rip the necessary portion of the seam, and make a wider seam in the sleeve but not in the dress. Be careful to allow ample room for arm movements. If the sleeve puffs in front at the armseye, alter in a similar manner. The front curve of the sleeve is too high. (Fig. 22, B.)

**Sleeve wrinkling from armpit to elbow.**—The armseye curve of the garment is too high under the arm for the shape of the sleeve. Rip the lower half of the armseye seam and allow the sleeve to fall into its natural position thus causing the wrinkles to disappear. Rebaste in this position. The seam in the sleeve should remain the same width, while that of the armseye of the dress will be lowered and widened directly under the arm.

**Sleeve too long or too short.**—If the sleeve is close fitting and is too long, take two horizontal tucks in the pattern, one halfway from the elbow to the bottom, the other halfway from the elbow to the underarm level. Recut the sleeve from the altered pattern. If this kind of sleeve is too short, split the pattern on the same lines given above for the tucks, spread it the desired amount, and recut the sleeve. In either case take care that the proper position for the elbow is kept in relation to the arm. Thus the pattern for a figure with a long forearm in relation to the upper arm would not need an equal amount added above and below the elbow line of the pattern. In some cases it may only be necessary to move the fullness at the elbow of the sleeve either up or down to fit the arm. This is important for comfort as well as for fit in a snugly fitted sleeve.

If the sleeve is a straight one, with no definite proportion between the upper and lower parts (fig. 22, A and B), lengthen or shorten it by cutting a slash or folding a tuck across the middle of the sleeve. Length may also be added by cutting the sleeve longer at the bottom, keeping the same line as that of the pattern.

**Horizontal wrinkles around sleeve at level or armpit.**—These wrinkles (fig. 24) are formed by both the armseye and the sleeve being too high under the arm or by the sleeve not being wide enough just above the level of the armpit. If the armseye seam is too high under the arm, make it wider at the underarm and cut away the excess material. If the sleeve is not large enough around, let out the sleeve seam or set a gusset in the sleeve seam from the armseye to the elbow. As a last resort, recut the sleeve, making it wider on both the back and front curves (fig. 22, B) without changing the length of the sleeve over the top.